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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,126

06/16/2006

Akane Masumoto

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12/23/2008

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EXAMINER

KOSACK, JOSEPH R

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

12/23/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,126	<b>Applicant(s)</b> MASUMOTO ET AL.	
	<b>Examiner</b> JOSEPH R. KOSACK	<b>Art Unit</b> 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/30/06 &amp; 10/31/07</u> .                                 | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-7 are pending in the instant application.

#### ***Election/Restrictions***

Applicant's election without traverse of Group I (claims 1-4 and 7) in the reply filed on September 16, 2007 is acknowledged. Claims 5 and 6 are withdrawn from further consideration by the Examiner under 37 CFR 1.142(b) as being drawn to a non-elected invention.

#### ***Priority***

The claim to priority as a 371 filing of PCT/JP05/05306 filed on March 16, 2005, which claims priority to JP 2004-087077 filed on March 24, 2004 is acknowledged in the instant application.

#### ***Information Disclosure Statement***

The Information Disclosure Statements filed on November 30, 2006 and October 31, 2007 have been considered by the Examiner.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

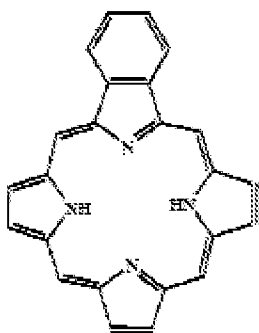
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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aramaki et al. (US PG PUB 2003/0226996 A1) in view of Clezy et al. (CAS *Accession No.* 1978:22858).

Aramaki et al. teach a field effect transistor which comprises an organic semiconductor layer which can have a compound with the core structure of

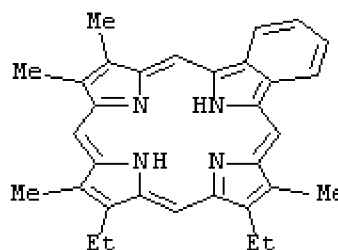


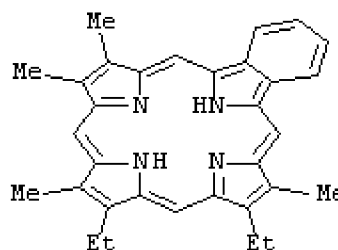
. See pages 16-17, specifically paragraphs 110-126 for

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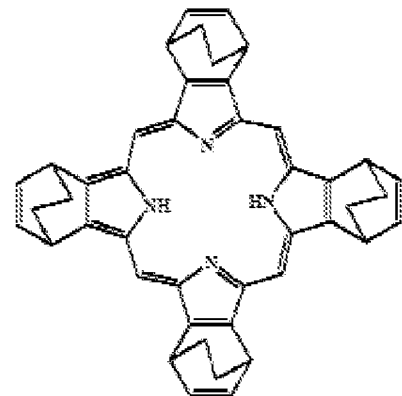
information on the field effect transistor device and page 9 for the core structure shown above. Additionally, Aramaki et al. teach that while the structures shown as core structures are shown with no metal, metal salts corresponding to the examples or molecules having substituents may likewise be used as preferred examples. See page 8, paragraph 94.

Aramaki et al. do not teach specifically a compound, such as that of the instant application where at least two of R2 are not hydrogen and where the organic semiconductor layer has at least one peak at  $7.8^{\circ} \pm 0.2^{\circ}$  in terms of Cu K-alpha X-ray diffraction.

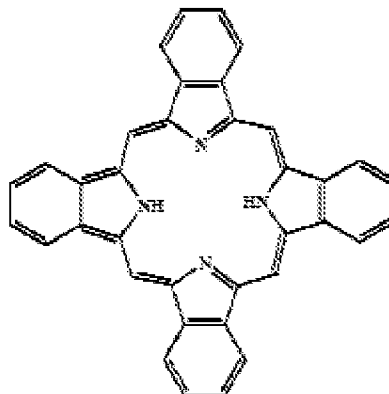


Clezy et al. teach a compound of the formula  which corresponds to the claims where M is two hydrogen atoms, all R1 and R3 groups are hydrogen, and all R2 groups are alkyl. See the hitstructure.

As to the x-ray diffraction peak at  $7.8^{\circ} \pm 0.2^{\circ}$ , the process of deposition shown by Aramaki et al. to achieve a crystalline semiconductor layer is the same as the instant



application, namely that a compound with the structure



can be thermally decomposed to form , which can be adapted to porphyrins which are only benzofused once. Aramaki et al. report that the heating of the "bicyclo" compound, which does not have any X-ray diffraction peaks, to yield the benzofused porphyrin generates an X-ray diffraction pattern with a sharp peak. See page 25, paragraph 227. Therefore, even though Aramaki et al. do not teach the exact angle where the sharp peak is formed, one of ordinary skill in the art would understand that this is the same peak that the instant invention requires in claims 2 and 7.

Hence, one of ordinary skill in the art would look upon the field effect transistors and process of making them of Aramaki et al. and substitute the corresponding

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compound of Clezy et al. since Aramaki et al. teach that porphyrin structures with substituents may be used as preferable examples and yield the instant invention with a reasonable expectation of success. The person of ordinary skill in the art would be motivated to do this since Aramaki et al. clearly suggest that porphyrins with a coordinated metal or with substituents can be used with similar effects. See page 8, paragraph 94.

### ***Conclusion***

Claims 1-4 and 7 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH R. KOSACK whose telephone number is (571)272-5575. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph R Kosack/  
Examiner, Art Unit 1626